

**State of California  
The Resources Agency  
DEPARTMENT OF WATER RESOURCES  
DIVISION OF FLOOD MANAGEMENT**



**2004  
PROJECT STRUCTURE REPORT**

**INSPECTION OF  
FLOOD CONTROL STRUCTURES ON THE  
SACRAMENTO AND SAN JOAQUIN RIVERS  
AND THEIR TRIBUTARIES**

**Prepared By The  
Flood Operations Branch  
Flood Project Inspection Section**

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## **INTRODUCTION**

The flood control system of the Sacramento and San Joaquin Valleys depends on the levee system and the many structures built on the tributaries and bypasses. These structures are fixed crest diversion weirs, controllable diversion structures, outfall structures, drop structures, and interior drainage pumping plants. This report reviews the maintenance of these structures.

### **History of Report**

The maintenance effort expended on these structures has been the subject of an annual report dating back to 1959. A report entitled, "Location, Description and Inventory of Miscellaneous Project Structures, Sacramento River Flood Control Project, and American River Flood Control Project", was issued and was followed shortly thereafter by a maintenance status report. Maintenance status reports on flood control structures have since been made on an annual basis.

### **Responsibility for Maintenance**

The flood control structures included herein were, in general, constructed as an integral part of the flood control project, by the U.S. Army Corps of Engineers and the State of California. Operation and Maintenance manuals were issued by the constructing authority to the maintaining agency. Maintaining agencies agreed to be responsible for the maintenance of the project structures. The State of California makes periodic inspections of the quality of the maintenance performed by the maintaining agencies and reports its findings to those agencies. These inspections are made on behalf of The Reclamation Board by the Division of Flood Management, Flood Operations Branch, Flood Project Inspection Section.

The purpose of the inspection is to identify and report to the constructing authority and the maintaining agency any condition that may diminish the ability of the structure to perform its intended function.

# **CHAPTER I**

## **FLOOD CONTROL STRUCTURES INSPECTED ON THE SACRAMENTO RIVER AND TRIBUTARIES**

**2004**

**NORTH FORK FEATHER RIVER  
DIVERSION STRUCTURE  
MAINTAINED BY PLUMAS COUNTY**

1. Condition of concrete diversion structure.
  - a. Good.
2. Condition of the gauging house and equipment.
  - a. Fair. There are still numerous bullet holes in the door.
3. Condition of the steel trash racks.
  - a. Good.
4. Condition of debris deflection structure.
  - a. Good.
5. Condition of the revetments.
  - a. Good.
6. Accumulation of trash and debris around structure or in the channel.
  - a. Minimal amount of debris around the deflection structure.
7. Vegetation around the structure or in the channel.
  - a. None.
8. Condition of the conduits.
  - a. The center conduit was inspected this year and found to be in good condition. However the separations at the joints between the monoliths have increased.

**NORTH FORK FEATHER RIVER  
DIVERSION STRUCTURE  
MAINTAINED BY PLUMAS COUNTY**

- 9. Condition of the discharge structure.**
- a. The structure is in good condition.**

- 10. Comments:**
- a. Good maintenance.**

**NOTE:** Routinely, one of the three diversion structure conduits is jointly inspected each year with the Corps of Engineers and Plumas county.



**NORTH FORK FEATHER RIVER  
DIVERSION STRUCTURE  
MAINTAINED BY PLUMAS COUNTY**



**The upstream side of the diversion structure at the inlet.**



**The boom and inlet from the top of the dam.**

**NORTH FORK FEATHER RIVER  
DIVERSION STRUCTURE  
MAINTAINED BY PLUMAS COUNTY**



**The outlet works from the top of the dam.**



**The gauging house door is severely damaged, resulting in no access.**

**NORTH FORK FEATHER RIVER DIVERSION CHANNEL  
DROP STRUCTURES 1 through 7  
Maintained by Plumas County**

1. Condition of grouted rock revetment drop structures.
  - a. Good.
2. Condition of channel banks upstream and downstream of the drop structures.
  - a. Good.
3. Accumulation of trash and debris around the structures or in the channel.
  - a. Minimal.
4. Vegetation around the structures, the channel banks or in the channel.
  - a. Minimal.
5. Comments:
  - a. Good maintenance.



**NORTH FORT FEATHER RIVER DIVERSION CHANNEL  
DROP STRUCTURES 1 through 7  
Maintained by Plumas County**



**View of Drop Structure No. 1 from the left bank.  
Typical of all drop structures.**



**North from the Hwy 36 bridge  
at drop structures 3 through 7.**

**CLOVER CREEK DIVERSION STRUCTURE**  
**Maintained by Lake County Flood Control and Water Conservation District**

1. Condition of concrete weir structure.
  - a. Good.
2. Condition of the diversion structure and wing walls.
  - a. Good.
3. Condition of the bulkhead.
  - a. Good.
4. Condition of the control gates and mechanism.
  - a. Good.
5. Accumulation of trash and debris around the structures or in the channel.
  - a. Most of the gravel has been removed from the outlet pipes, but has accumulated within 5 feet of the outlet pipes, thus the water could not flow correctly as designed.
  - b. Some gravel and rock needs to be removed on the upstream side.
6. Vegetation around the structures or in the channel.
  - a. A lot of vegetation upstream from the gates needs to be cleared.
  - b. There is dense vegetation in the creek channel, 30 feet downstream of the structure.
7. Comments:
  - a. Remove accumulated rock, dirt, boulders and gravel upstream of weir.
  - b. Good maintenance.

**CLOVER CREEK DIVERSION STRUCTURE**  
**Maintained by Lake County Flood Control and Water Conservation District**



**The Clover Creek Diversion structure on the left bank.**



**Diversion structure outlet to Clover Creek.**



**CLOVER CREEK DIVERSION STRUCTURE**  
**Maintained by Lake County Flood Control and Water Conservation District**



**Pile of rocks on upstream left bank to be removed.**



**Growth on upstream side.**





## **MIDDLE CREEK PUMPING PLANT**

**Maintained by State of California  
Sutter Maintenance Yard**

1. **Condition of main pump structure and switchboard house.**
  - a. **Poor. The separation between the top of the surge box and the structure appears to have an eight and one half inch side displacement. The surge box has settled twelve inches since 1962 and is 7.6 feet below the top of the structure. There is approximately a two inch deflection. There have been no changes since last reported.**
2. **Condition of pumps and motors.**
  - a. **Good.**
3. **Condition of electrical equipment.**
  - a. **Good.**
4. **Condition of control gates, mechanisms, and flap gates.**
  - a. **Good.**
5. **Condition of the trash racks.**
  - a. **Good.**
6. **Condition of log boom.**
  - a. **Good.**
7. **Condition of hydrographic facilities.**
  - a. **Good.**
8. **Accumulation of trash or debris in the sump.**
  - a. **None.**
9. **Vegetation in sump.**
  - a. **Minimal.**
10. **Comments:**
  - a. **DWR's Sutter Maintenance Yard performs routine maintenance year round and tests the equipment prior to each flood season.**

**MIDDLE CREEK PUMPING PLANT**  
Maintained by State of California  
Sutter Maintenance Yard



**Upstream at the breather pipe and screw gate mechanism.**



**Upstream at the intake side of the pumping plant.**

**HIGHLAND CANAL DIVERSION WEIR  
AND DRAINAGE STRUCTURE**  
Maintained by State of California  
Sutter Maintenance Yard

1. Condition of concrete weir structure and stilling basin.
  - a. Good.
2. Condition of drainage structure.
  - a. Good.
3. Condition of the concrete abutments and wing walls.
  - a. There is a displacement between both wing walls and the structure, 2 inches on left wing wall and 2½ inches on the right wing wall. Displacement has been stable for at least 6 years.
4. Condition of the revetment.
  - a. Good.
5. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
6. Vegetation around the structure or in the channel.
  - a. A lot of tule growth and tall grass on south side of abutment.
7. Comments:
  - a. Good maintenance



**HIGHLAND CANAL DIVERSION WEIR  
AND DRAINAGE STRUCTURE**  
Maintained by State of California  
Sutter Maintenance Yard



**The concrete weir and diversion pipe intake.**



**The outlet channel for the diversion pipes.**

**BIG CHICO CREEK  
DIVERSION STRUCTURE  
Maintained by Butte County**

1. Condition of concrete control structure.
  - a. Good.
2. Condition of bulkheads.
  - a. Good.
3. Condition of gate controls and mechanisms.
  - a. Butte county will test gates prior to flood season.
4. Condition of revetment.
  - a. Good.
5. Accumulation of trash and debris around the structure in the channel.
  - a. None.
6. Vegetation around structure and in the channel.
  - a. None.
7. Comments:
  - a. Contact DWR inspector prior to gate test.
  - b. Good maintenance.



**BIG CHICO CREEK  
DIVERSION STRUCTURE**  
Maintained by Butte County



**Upstream at inlet end of structure.**



**Downstream at discharge end of structure from the right bank.**

**LINDO CHANNEL DIVERSION WEIR**  
**Maintained by Butte County**

1. Condition of concrete weir structure and stilling basin, and velocity dissipaters.
  - a. There are minor joint separations on the north and south ends of the weir where it contacts the abutments.
  - b. There is minor damage to a few velocity dissipaters.
2. Condition of concrete abutments and wing walls.
  - a. Good.
3. Condition of revetment.
  - a. Good.
4. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
5. Vegetation around structure or in the channel.
  - a. None.
6. Condition of gauging house and equipment.
  - a. Poor.
7. Comments:
  - a. Repair or replace the gauging house.
  - b. Fair maintenance.

**LINDO CHANNEL DIVERSION WEIR**  
**Maintained by Butte County**



**Upstream side of the structure from the left bank.**



**The velocity dissipaters on the downstream side of structure from the left bank.**



## **LINDO CHANNEL CONTROL STRUCTURE**

**Maintained by Butte County**

- 1. Conditions of concrete control structure.**
  - a. Good.**
- 2. Condition of bulkheads.**
  - a. There is a ½ inch separation in the joint between the south end bulkhead and the structure. This joint separation is stable.**
- 3. Condition of control gates and mechanisms.**
  - a. Good.**
- 4. Condition of revetment.**
  - a. Poor. The downstream rock and gunite skirt is severely damaged, seems to be stable.**
- 5. Accumulation of trash and debris around the structure or in the channel.**
  - a. None.**
- 6. Vegetation around the control structure or in the channel.**
  - a. None.**
- 7. Comments:**
  - a. Butte County will test the control gates prior to flood season.**
  - b. Repair the rock and gunite skirt downstream of structure.**
  - c. Fair maintenance.**

# **LINDO CHANNEL CONTROL STRUCTURE**

**Maintained by Butte County**



**Upstream at intake side of structure.**



**Downstream at discharge side of structure.**

# **LITTLE CHICO CREEK CONTROL AND WEIR STRUCTURES**

**Maintained by State of California**

**Sutter Maintenance Yard**

- 1. Condition of concrete control structure.**
  - a. Fair. The base at the downstream side of the control structure is beginning to undermine.**
- 2. Condition of bulkheads and wing walls of the control structure.**
  - a. Previously reported separations and displacements are stable.**
- 3. Condition of concrete weir, stilling basin, and velocity dissipaters.**
  - a. Minor cracks in the weir and minor spalling of concrete on the weir invert.**
- 4. Condition of concrete bulkheads of the weir.**
  - a. Good.**
- 5. Condition of bulkheads and fill between the control structure and the weir.**
  - a. Good.**
- 6. Condition of the revetments.**
  - a. Poor. The revetment/gunite apron on the downstream end of the control structure is severely damaged.**
- 7. Condition of the gauging station and equipment.**
  - a. Good.**
- 9. Accumulation of trash and debris around the structures or in the channel.**
  - a. None.**
- 10. Vegetation around the control structure, the weir, or in the channel.**
  - a. Minimal.**

# **LITTLE CHICO CREEK CONTROL AND WEIR STRUCTURES**

**Maintained by State of California**

**Sutter Maintenance Yard**

## **11. Comments:**

- a. Repair the control structure base (downstream side) as soon as possible.**
- b. Continue to monitor joint separation between the control structure and the abutments and repair as needed.**
- c. Remove driftwood and cobbles from dissipaters.**
- d. Remove small trees in front of dissipaters.**
- e. Fair maintenance.**



**LITTLE CHICO CREEK CONTROL AND WEIR STRUCTURES**  
**Maintained by State of California**  
**Sutter Maintenance Yard**



**View of the upstream side of the control structure and weir.**



**The upstream side of the control structure.**



# **LITTLE CHICO CREEK CONTROL AND WEIR STRUCTURES**

**Maintained by State of California  
Sutter Maintenance Yard**



**The downstream side of the control structure.  
Repairs have not been made to prevent undermining of the structure.**



**The weir and velocity dissipaters.**

**MOULTON WEIR**  
**Maintained by State of California**  
**Sutter Maintenance Yard**

1. Condition of concrete weir structure and stilling basin.
  - a. Good.
2. Condition of concrete abutment and wing walls.
  - a. Good.
3. Condition of revetments.
  - a. Good.
4. Accumulation of trash and debris around structure or in the channel.
  - a. None.
5. Vegetation around the structure or in the channel.
  - a. None.
6. Condition of gauging house and equipment.
  - a. Good.
7. Comments:
  - a. Good maintenance.
  - b. Rodent problem needs to be repaired.

**MOULTON WEIR**  
Maintained by State of California  
Sutter Maintenance Yard



**The weir and stilling basin from the top of abutment.**



**Gauging house and equipment.**



**COLUSA WEIR**  
**Maintained by State of California**  
**Sutter Maintenance Yard**

1. **Condition of concrete weir structure and stilling basin.**  
**(Note: Bridge across bypass is not part of the weir structure)**
  - a. **Good.**
2. **Condition of concrete abutment and wing walls.**
  - a. **Good.**
3. **Condition of revetment.**
  - a. **Good.**
4. **Accumulation of trash and debris around the structure or in the channel.**
  - a. **None.**
5. **Vegetation around the structure or in the channel.**
  - a. **None.**
6. **Condition of gauging house and equipment.**
  - a. **Good.**
7. **Comments:**
  - a. **Good.**

**COLUSA WEIR**  
**Maintained by State of California**  
**Sutter Maintenance Yard**



**The upstream side of weir from the north levee.**



**Gauging house and equipment.**

**TISDALE WEIR**  
**Maintained by State of California**  
**Sutter Maintenance Yard**

1. **Condition of concrete weir structure and stilling basin.**  
**(Note: Bridge across bypass is not part of the weir structure)**
  - a. **Good.**
2. **Condition of concrete abutment and wing wall.**
  - a. **Good.**
3. **Condition of revetments.**
  - a. **Good.**
4. **Accumulation of trash and debris around the structure or in the channel.**
  - a. **None.**
5. **Vegetation around structure or in the channel.**
  - a. **Minimal.**
6. **Condition of gauging house and equipment.**
  - a. **Good.**
7. **Comments:**
  - a. **Tighten or replace north hand railing.**
  - b. **Good Maintenance.**

**TISDALE WEIR**  
**Maintained by State of California**  
**Sutter Maintenance Yard**



**Downstream side of the weir from the north end.**



**Upstream side of the weir from the south end.**

## **BUTTE SLOUGH OUTFALL STRUCTURE**

**Maintained by State of California  
Sutter Maintenance Yard**

- 1. Condition of walkway and supports.**
  - a. Good.**
- 2. Condition of pipes.**
  - a. Visual inspection impractical.**
- 3. Condition of the control gates, mechanisms and flap gates.**
  - a. Visual inspection impractical.**
- 4. Condition of log boom.**
  - a. The log boom was present at the time of the inspection.**
  - b. Trash, tree limbs etc. caught under log boom.**
- 5. Condition of gauging house and equipment.**
  - a. Good.**
- 6. Condition of revetment.**
  - a. Good.**
- 7. Accumulation of trash and debris around the structure or in the channel.**
  - a. Minimal. Logs need to be removed.**
- 8. Comments:**
  - a. Sutter Maintenance Yard reports that all equipment is in good working order.**
  - b. Good Maintenance.**



**BUTTE SLOUGH OUTFALL STRUCTURE**  
Maintained by State of California  
Sutter Maintenance Yard



**The intake side of the structure.**



**Upstream at log boom.**

## **BUTTE SLOUGH DRAINAGE STRUCTURE**

**Maintained by State of California  
Sutter Maintenance Yard**

- 1. Condition of the corrugated metal pipe (CMP) drainage structure.**
  - a. Good.**
- 2. Condition of the control gate, mechanisms, and flap gates.**
  - a. Could not properly inspect due to excessive vegetation.**
- 3. Condition of the revetment.**
  - a. Visual inspection was limited due to vegetation.**
- 4. Accumulation of trash and debris around the inlet, in the pipe or in the channel.**
  - a. Minimal.**
- 5. Vegetation around the structure or in the channel.**
  - a. The vegetation immediately around the in-take has been cleared. Growth is so dense that discharge ends of structure cannot be seen.**
- 6. Comments:**
  - a. Remove vegetation from discharge ends of structure. If growth is not removed, the drainage structure could become non-functional.**
  - b. Some maintenance.**
  - c. This structure is rated poor.**

**BUTTE SLOUGH DRAINAGE STRUCTURE**  
Maintained by State of California  
Sutter Maintenance Yard



**CMP stand pipe in the center.**



**The Sacramento River in the general direction of the outlet.  
The outlet would be on the left bank (foreground).**



# **SUTTER BYPASS PUMPING PLANT NO. 1**

**Maintained by State of California  
Sutter Maintenance Yard**

- 1. Condition of the main pump structure.**
  - a. Good.**
- 2. Condition of abutments and wing walls.**
  - a. Good.**
- 3. Condition of pumps and motors.**
  - a. Good.**
- 4. Condition of control gates, mechanisms, and flap gate.**
  - a. Good.**
- 5. Condition of electrical equipment.**
  - a. Good.**
- 6. Condition of trash rack.**
  - a. Good.**
- 7. Condition of revetment.**
  - a. Good.**
- 8. Accumulation of trash and debris in the sump.**
  - a. None.**
- 9. Vegetation in the inlet channel.**
  - a. None.**
- 10. Comments:**
  - a. Tests of pumps, motors and electrical equipment are conducted in October each year.**
  - b. Railing in front of pump gates and on the south side is not locked down, very loose or is missing bolts.**
  - c. Cover exposed electrical wire on south side of wall.**
  - d. Good maintenance.**

**SUTTER BYPASS PUMPING PLANT NO. 1**  
Maintained by State of California  
Sutter Maintenance Yard



**The intake side of the pumping plant.  
Pump numbers were inserted onto picture.**



**The discharge side of the pumping plant.**

**SUTTER BYPASS PUMPING PLANT NO. 1**  
Maintained by State of California  
Sutter Maintenance Yard



**Railing not locked down, could be easily removed.**



**Electrical wire exposed.**





## **SUTTER BYPASS PUMPING PLANT NO. 2**

**Maintained by State of California  
Sutter Maintenance Yard**

- 1. Condition of main pump structure.**
  - a. Good.**
- 2. Condition of abutments and wing walls.**
  - a. Water is undercutting the south wing wall.**
- 3. Condition of pumps and motors.**
  - a. Good.**
- 4. Condition of control gates, mechanisms, and flap gates.**
  - a. Good.**
- 5. Condition of electrical equipment.**
  - a. Good.**
- 6. Condition of the trash racks.**
  - a. Good.**
- 7. Condition of revetment.**
  - a. Good.**
- 8. Accumulation of trash or debris in the sump.**
  - a. Pump No. 3 has trash and debris in it.**
- 9. Vegetation in the inlet channel.**
  - a. Minimal.**

## **SUTTER BYPASS PUMPING PLANT NO. 2**

**Maintained by State of California  
Sutter Maintenance Yard**

### **10. Comments:**

- a. Tests of the pumps, motors, and electrical equipment are conducted in October each year.**
- b. Repair bank erosion on south wing wall, undercutting the wall.**
- c. Repair dirt sinking at end of south wall on top, exposing concrete.**
- d. Cover the exposed wire.**
- e. Remove plant growth and debris in pump No. 3.**
- f. Good maintenance.**

**SUTTER BYPASS PUMPING PLANT NO. 2**  
Maintained by State of California  
Sutter Maintenance Yard



**The pumping plant, sump and trash racks from the intake side.  
Pump numbers were inserted onto picture.**



**The discharge side of the pumping plant.**

**SUTTER BYPASS PUMPING PLANT NO. 2**  
Maintained by State of California  
Sutter Maintenance Yard



**Erosion on south wing wall, undercutting the wall.**



**Electrical wire exposed.**



**SUTTER BYPASS PUMPING PLANT NO. 2**  
Maintained by State of California  
Sutter Maintenance Yard



**Dirt sinking at end of south wall on top, exposing concrete.**



## **SUTTER BYPASS PUMPING PLANT NO. 3**

**Maintained by State of California  
Sutter Maintenance Yard**

- 1. Condition of main pump structure.**
  - a. Good.**
- 2. Condition of abutments and wing walls.**
  - a. Good.**
- 3. Condition of pumps and motors.**
  - a. Good.**
- 4. Condition of control gate, mechanisms and flap gate.**
  - a. Good.**
- 5. Condition of electrical equipment.**
  - a. Good.**
- 6. Condition of the trash racks.**
  - a. Good.**
- 7. Accumulation of trash or debris in the sump.**
  - a. None.**
- 8. Vegetation in the inlet channel.**
  - a. Minimal.**
- 9. Comments:**
  - a. Tests of the pumps, motors and electrical equipment are conducted in October each year.**
  - b. Railing north side at the end needs to be locked or bolted down.**
  - c. Good maintenance.**

**SUTTER BYPASS PUMPING PLANT NO. 3**  
Maintained by State of California  
Sutter Maintenance Yard



**The inlet side of the pumping plant.  
Pump numbers were inserted onto picture.**



**The discharge side of the pumping plant.**



## **WADSWORTH CANAL WEIR NO.4**

**Maintained by State of California  
Sutter Maintenance Yard**

- 1. Condition of concrete weir structure.**
  - a. Good.**
- 2. Condition of concrete abutments.**
  - a. Good.**
- 3. Accumulation of trash and debris around the structure or in the channel.**
  - a. None.**
- 4. Vegetation around structure or in the channel.**
  - a. None.**
- 5. Comments:**
  - a. Good maintenance.**

**WADSWORTH CANAL WEIR NO.4**  
Maintained by State of California  
Sutter Maintenance Yard



**Upstream side of structure from the left bank levee.**



**Downstream side of structure from the left bank levee.**

**SUTTER BYPASS WEIR NO. 2**  
**Maintained by State of California**  
**Sutter Maintenance Yard**

1. Condition of concrete weir structure.
  - a. Good.
2. Condition of concrete abutments.
  - a. Good.
3. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
4. Vegetation around structure or in the channel.
  - a. None.
5. Comments:
  - a. Railing need to be reinstalled.
  - b. Boards need to reinstalled.
  - c. Good maintenance.

**SUTTER BYPASS WEIR NO. 2**  
Maintained by State of California  
Sutter Maintenance Yard



**Upstream side of the structure.**



**Downstream side of the structure.**



## **NELSON BEND ROCK QUARRY WEIR**

**Maintained by State of California  
Sutter Maintenance Yard**

- 1. Condition of quarry rock weir section.**
  - a. Good.**
- 2. Condition of revetments.**
  - a. Good.**
- 3. Accumulation of trash and debris around structure or in the channel.**
  - a. Areas of debris exist along the weir and in the channel.**
- 4. Vegetation around structure or in the channel.**
  - a. Vegetation is very heavy, with trees, brush and berries on the weir section and in the rock revetments.**
- 5. Comments:**
  - a. No clearing done since 1985. The vegetation is extremely dense and could impair the functioning of the weir.**
  - b. Poor maintenance.**
  - c. An unauthorized barricade has been installed at each end of Nelson Bend rock weir.**

**NELSON BEND ROCK QUARRY WEIR**  
Maintained by State of California  
Sutter Maintenance Yard



**Southwest at the growth and debris on the rock weir.**



**Northeast from the southwest end of the weir.**

# **KNIGHTS LANDING OUTFALL STRUCTURE**

**Maintained by State of California  
Sutter Maintenance Yard**

- 1. Condition of outfall structure.**
  - a. Good.**
- 2. Condition of bulkheads.**
  - a. Fair. The large vertical crack and displacement on the downstream side, left bank, has not changed in several years. The crack is not accessible for measurement, but the overall width is estimated to be 1 inch.**
  - b. The concrete construction joint between the left bulkhead and the outfall structure, upstream side, passes water when the Sacramento River is at high stage. Passage of water was first noticed in 1980.**
  - c. Horizontal crack on the upstream left bulkhead.**
- 3. Condition of the pipes.**
  - a. Good.**
- 4. Condition of the control gates, mechanisms, and flap gates.**
  - a. Good. Were open and working.**
- 5. Condition of electrical equipment.**
  - a. Good.**
- 6. Condition of the gauging house and equipment.**
  - a. Good.**
- 7. Condition of the log boom.**
  - a. Good.**
- 8. Condition of fill from bulkheads to levee.**
  - a. Good.**

## **KNIGHTS LANDING OUTFALL STRUCTURE**

**Maintained by State of California  
Sacramento Maintenance Yard**

- 9. Accumulation of trash and debris around the structure or in the channel.**
  - a. Minimal.**
- 10. Comments:**
  - a. Structure is inspected and maintained daily.**
  - b. The seepage through the structure should be monitored during high water stages.**
  - c. Sacramento Maintenance Facility performs a yearly pre-season inspection of the structure and its components.**
  - d. Clear vegetation on and around log boom.**
  - e. Good maintenance.**



# **KNIGHTS LANDING OUTFALL STRUCTURE**

**Maintained by State of California**

**Sacramento Maintenance Yard**



**Upstream side of structure from the left bank.**



**Downstream side of the structure from the left bank.**

## **KNIGHTS LANDING OUTFALL STRUCTURE**

**Maintained by State of California  
Sacramento Maintenance Yard**



**There is a vertical crack and displacement on the downstream side of structure.**



**Horizontal crack on the upstream left bulkhead.**

**FREMONT WEIR**  
**Maintained by State of California**  
**Sacramento Maintenance Yard**

1. Condition of concrete weir and stilling basin.
  - a. Some cracks and spalling exist on the weir and in the stilling basin as previously reported.
2. Condition of concrete abutment.
  - a. Good.
  - b. The crack on the downstream side of the right (west) abutment, and the two cracks on the right abutment at Rattlesnake Island, have not enlarged.
  - c. North abutment has large cracks on east side.
3. Condition of revetment.
  - a. Good.
4. Accumulation of trash and debris around the structure or in the channel.
  - a. Minimal.
5. Vegetation around the structure or in the channel.
  - a. Minimal.
  - b. Minimal.
6. Condition of gauging house and equipment.
  - a. Good.
7. Comments:
  - a. Monitor the cracks and spalling and repair as needed.
  - b. Remove debris from the stilling basin prior to flood season.
  - c. Good maintenance.



**FREMONT WEIR**  
**Maintained by State of California**  
**Sacramento Maintenance Yard**



**Northwest at the weir and stilling basin from the north abutment.**



**North from the southern abutment.**

**CACHE CREEK SETTLING BASIN WEIR  
AND DRAINAGE STRUCTURE**  
Maintained by State of California  
Sacramento Maintenance Yard

1. Condition of concrete weir structure and stilling basin.
  - a. Good.
2. Condition of drainage structure.
  - a. Good.
3. Condition of concrete abutments and wing walls.
  - a. Good.
4. Condition of revetment.
  - a. Good.
5. Accumulation of trash and debris around the structures or in the channels.
  - a. Minimal debris around the drainage structure.
6. Vegetation around the structures or in the channel.
  - a. None.
7. Comments:
  - a. Remove the accumulated debris around the drainage structure.
  - b. Good maintenance.



**CACHE CREEK SETTLING BASIN WEIR  
AND DRAINAGE STRUCTURE**  
Maintained by State of California  
Sacramento Maintenance Yard



**East at the weir and stilling basin.  
The weir spills into the Yolo Bypass.**



**View of the drainage structure located in the southwest  
corner of the Cache Creek Settling Basin.**

**CACHE CREEK SETTLING BASIN WEIR  
AND DRAINAGE STRUCTURE**  
Maintained by State of California  
Sacramento Maintenance Yard



**West at the outlet drainage structure.**



**SACRAMENTO WEIR**  
**Maintained by State of California**  
**Sacramento Maintenance Yard**

1. Condition of concrete weir section and stilling basin.
  - a. Good.
2. Condition of concrete bulkheads.
  - a. Good.
3. Condition of the needle boards, batting and boots (hinges).
  - a. Good.
4. Condition of tripping mechanisms.
  - a. Good.
5. Condition of the metal stop logs, cables and clamps used to retain the needle boards.
  - a. Good.
6. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
7. Vegetation around the structure or in the channel.
  - a. Minor Vegetation.
8. Comments:
  - a. Good maintenance.

**SACRAMENTO WEIR**  
Maintained by State of California  
Sacramento Maintenance Yard



**Outlet side of the weir.**



**Inlet side of the weir.**



**MAGPIE CREEK PUMPING PLANT**  
**Maintained by City of Sacramento**

1. Condition of main pump structure.
  - a. Good.
2. Condition of abutment and wing walls.
  - a. Good.
3. Condition of the pumps and motors.
  - a. Good.
4. Condition of control gates, mechanisms, and flap gates.
  - a. Good.
5. Condition of the electrical equipment.
  - a. Good.
6. Condition of the trash racks.
  - a. Good.
7. Accumulation of trash debris in the sump or in the channel.
  - a. None.
8. Vegetation in the sump or in the inlet channel.
  - a. None.
9. Comments:
  - a. Good maintenance.
  - b. There is a weekly, monthly and an annual inspections.
  - c. Replace flap gate.

**MAGPIE CREEK PUMPING PLANT**  
Maintained by City of Sacramento



**Pumping plant, sump, and trash racks at inlet side on the landward side from the left bank levee of the Natomas East Main Drain.**



**Discharge end of structure on the water ward side from the left bank levee of the Natomas East Side Drain.**

## **AMERICAN RIVER PUMPING PLANT NO.1**

**Maintained by Sacramento County as  
Howe Avenue Storm Drain D - 05**

- 1. Condition of the main pump structure.**
  - a. Good.**
- 2. Condition of abutments and wing walls.**
  - a. Good.**
- 3. Condition of pumps and motors.**
  - a. Good.**
- 4. Condition of gate controls, mechanisms and flap gates.**
  - a. Good.**
- 5. Condition of electrical equipment.**
  - a. Good.**
- 6. Condition of the trash racks.**
  - a. Good.**
- 7. Accumulation of trash and debris in the sump or around the structure.**
  - a. None.**
- 8. Vegetation in the sump or in the inlet channel.**
  - a. None.**
- 9. Comments:**
  - a. Inspection and tests of all systems are conducted yearly.  
Annual maintenance on system done in June and July.**
  - b. Remove K-Rail from the inlet on landward side of the right bank levee.**
  - c. Outstanding maintenance.**

**AMERICAN RIVER PUMPING PLANT NO.1**  
Maintained by Sacramento County as  
Howe Avenue Storm Drain D - 05



**Pumping plant, sump and trash racks at inlet on the landward side of the right bank levee of the American River.**



**Gate controls and gates at the discharge side of the pumping plant.**

## **AMERICAN RIVER PUMPING PLANT NO.1**

**Maintained by Sacramento County as  
Willhaggin Storm Drain D – 43**

- 1. Condition of the main pump structure.**
  - a. Good.**
- 2. Condition of abutments and wing walls.**
  - a. There is a  $3\frac{5}{8}$  inch deflection in the retaining wall next to the stairway on the west side of structure.**
- 3. Condition of pumps and motors.**
  - a. Good.**
- 4. Condition of control gates, mechanisms, and flap gates.**
  - a. Good.**
- 5. Condition of electrical equipment.**
  - a. Good.**
- 6. Condition of trash racks.**
  - a. Good.**
- 7. Accumulation of trash and debris in the upper and lower sumps.**
  - a. None.**
- 8. Vegetation in the upper and lower sumps.**
  - a. None.**
- 9. Comments:**
  - a. Inspections and tests of all systems are conducted yearly. All maintenance done in September and October.**
  - b. There has been no measurable change in the  $3\frac{5}{8}$  inch deflection in the western retaining wall since last reported in 1998.**
  - c. Outstanding maintenance.**



**AMERICAN RIVER PUMPING PLANT NO.1**  
Maintained by Sacramento County as  
Willhaggin Storm Drain D – 43



**Trash racks on the intake side of the pumping plant.**



**Gate controls and flap gates on the  
discharge side of the pumping plant.**

**AMERICAN RIVER PUMPING PLANT NO.1**  
Maintained by Sacramento County as  
Willhaggin Storm Drain D – 43



**Three and five eighth inch deflection in the west retaining wall.**



**ELK SLOUGH INLET STRUCTURE**  
**Maintained by Reclamation District No. 999**

1. Condition of inlet structure.
  - a. Good.
2. Condition of control gate mechanism.
  - a. Good.
3. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
4. Vegetation around the structure.
  - a. Minor growth around outlet.
5. Comments:
  - a. Monitor and remove growth around outlet as needed.
  - b. Good maintenance.



**ELK SLOUGH INLET STRUCTURE**  
**Maintained by Reclamation District No. 999**



**View of the gate control mechanism box.**



**View of the discharge side into Elk Slough.  
The structure is under water.**





## **CHAPTER II**

# **FLOOD CONTROL STRUCTURES INSPECTED ON THE SAN JOAQUIN RIVER AND TRIBUTARIES**

**2004**

**MORMON SLOUGH PUMPING PLANT NO. 1**  
**Maintained by San Joaquin County**

1. Condition of main pump structure.
  - a. Good.
2. Condition of pumps and motors.
  - a. Good.
3. Condition of control gates, mechanisms and flap gates.
  - a. Good.
4. Condition of electrical equipment.
  - a. Good.
5. Condition of trash racks.
  - a. Good.
6. Accumulation of trash and debris in the sump.
  - a. None.
7. Vegetation in the sump.
  - a. None.
8. Comments:
  - a. Good maintenance.
  - b. Bullet holes on the front and east side of the structure.
  - c. Large hole on east side under the screen area.

**MORMON SLOUGH PUMPING PLANT NO. 1**  
Maintained by San Joaquin County



**The trash racks and the intake side of the pumping plant.**



**The outlet for the pumping plant, screw gate and flood wall.**

**MORMON SLOUGH PUMPING PLANT NO. 2**  
**Maintained by San Joaquin County**

1. Condition of main pump structure.
  - a. Good.
2. Condition of pumps and motors.
  - a. Good.
3. Condition of control gates, mechanisms and flap gates.
  - a. Good.
4. Condition of electrical equipment.
  - a. Good.
5. Condition of trash racks.
  - a. Good.
6. Accumulation of trash and debris in the sump.
  - a. None.
7. Vegetation in the sump.
  - a. None.
8. Comments:
  - a. Good maintenance.



## **MORMON SLOUGH PUMPING PLANT NO. 2**

**Maintained by San Joaquin County**



**The trash racks at the inlet side of the pumping plant.**



**The outlet for the pumping plant.**

**MORMON SLOUGH PUMPING PLANT NO. 3**  
**Maintained by San Joaquin County**

1. Condition of main pump structure.
  - a. Good.
2. Condition of pumps and motors.
  - a. Good.
3. Condition of control gates, mechanisms and flap gates.
  - a. Good.
4. Condition of electrical equipment.
  - a. Good.
5. Condition of trash racks.
  - a. Good.
6. Accumulation of trash and debris in the sump.
  - a. None.
7. Vegetation in the sump.
  - a. None.
8. Comments:
  - a. Good maintenance.

**MORMON SLOUGH PUMPING PLANT NO. 3**  
Maintained by San Joaquin County



**The trash racks and the inlet side of the pumping plant.**



**The outlet side for the pumping plant, screw gate and flood wall.**

**DUCK CREEK DIVERSION WEIR  
AND CONTROL STRUCTURE  
Maintained by San Joaquin County**

1. Condition of concrete control structure.
  - a. Good.
2. Condition of abutments and wing walls.
  - a. Good.
3. Condition of control gate and mechanism.
  - a. Good.
4. Condition of the concrete weir structure.
  - a. Good.
5. Condition of the revetment.
  - a. Good.
6. Accumulation of trash and debris around the structure or in the channel.
  - a. Good.
7. Vegetation around the structure or in the channel.
  - a. Small trees growing in the channel.
  - b. Grass seems to be getting heavier in the channel.
8. Comments:
  - a. Remove trees and grass.
  - b. Good maintenance.



**DUCK CREEK DIVERSION WEIR  
AND CONTROL STRUCTURE**  
Maintained by San Joaquin County



**The inlet side of the control structure.**



**The outlet side of the control structure.**



**DUCK CREEK DIVERSION WEIR  
AND CONTROL STRUCTURE**  
Maintained by San Joaquin County



**Upstream at the diversion weir.**



**The weir, stilling basin, right bank abutment and stream gauge.**



**PARADISE DAM**  
**No Maintaining Agency**

1. **Condition of the concrete rubble dam section.**
  - a. **Good.**
2. **Accumulation of trash and debris around the structure or in the channel.**
  - a. **None.**
3. **Vegetation around the structure and in the channel.**
  - a. **The willow trees along the upstream side of the structure are 12 to 15 feet tall and could alter the proper design function of the dam.**
4. **Comments:**
  - a. **Willow trees should be removed.**
  - b. **Maintenance responsibilities needs to be addressed and determined.**

**PARADISE DAM**  
**No Maintaining Agency**



**The upstream side of the dam.  
Note the willow growth in front of the structure.**



**The downstream side of dam.**

**WETHERBEE LAKE PUMPING PLANT  
AND NAVIGATION GATE  
Maintained by Reclamation District No. 2096**

1. Condition of main pump structure.
  - a. Good.
2. Condition of the navigation gate structure.
  - a. Good.
3. Condition of the abutments and wing walls.
  - a. Good, but there is a  $\frac{3}{4}$  inch separation in the joint between left retainer wall and wing wall. It has remained stable for several years.
4. Condition of pumps and motors.
  - a. Good.
5. Condition of flap gates.
  - a. Good.
6. Condition of electrical equipment.
  - a. Good.
7. Condition of the trash rack.
  - a. Good.
8. Condition of the gate hoist mechanism.
  - a. Good.
9. Condition of the revetment.
  - a. Good.
10. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
11. Comments:
  - a. Good maintenance.



**WETHERBEE LAKE PUMPING PLANT  
AND NAVIGATION GATE**  
Maintained by Reclamation District No. 2096



**The upstream side of the structure.**



**The downstream side of the structure.**

**GOMES LAKE PUMPING PLANT**  
**Maintained by Turlock Irrigation District**

1. **Condition of main pump structure.**
  - a. **There are several large holes around the bank between the structure and the levee. The holes appear to have been caused by rain runoff and are very deep.**
2. **Condition of pumps and motors.**
  - a. **Good.**
3. **Condition of the switchboard house and the electrical equipment.**
  - a. **Good.**
4. **Condition of the control gates, mechanism and flap gates.**
  - a. **Good.**
5. **Condition of the trash racks.**
  - a. **Good.**
6. **Condition of the gauging house and equipment.**
  - a. **Good.**
7. **Condition of the revetment.**
  - a. **Good.**
8. **Accumulation of trash and debris around structure or in the channel.**
  - a. **Minimal.**
9. **Vegetation around the structure or in the channel.**
  - a. **None.**
10. **Comments:**
  - a. **It is unclear if the holes in the bank will have an adverse effect on the pumping facility. Monitor and repair as needed.**

**GOMES LAKE PUMPING PLANT**  
Maintained by Turlock Irrigation District



**The intake and pumps for the structure.**



**The pumping plant outlet.**



**GOMES LAKE PUMPING PLANT**  
Maintained by Turlock Irrigation District



**The screw gates.**



**One of several large holes in the  
bank between the structure and the levee.  
Looks like there has been some repair work, but still a problem.**





**RECLAMATION DISTRICT NO 2063 PUMPING PLANT (Nelson Drain)**  
**Maintained by Reclamation District No. 2063**

1. Condition of main pump structure.
  - a. Fair.
2. Condition of abutments and wing walls.
  - a. Good.
3. Condition of pump and motor.
  - a. It is not clear if the pumps are operational. They have not been tested or run in some time.
4. Condition of control gate, mechanism and flap gate.
  - a. Good.
5. Condition of the trash racks.
  - a. The trash racks were not present at the time of the inspection.
6. Accumulation of trash and debris around the structure or in the channel.
  - a. Minimal.
7. Vegetation around the structure or in the outlet channel.
  - a. Minimal.
8. Comments:
  - a. The reclamation district is responsible for testing the pumps prior to flood season.
  - b. Replace the trash racks.
  - c. Monitor growth and remove as necessary.
  - d. Poor maintenance.
  - e. The district should consider replacement or reconstruction of the pump house, platform and trash racks.
  - f. Numerous bullet holes in the pump house.

**RECLAMATION DISTRICT NO 2063 PUMPING PLANT (Nelson Drain)**  
**Maintained by Reclamation District No. 2063**



**The pumping plant intake.**



**The two discharge pipes.**

## **BLACK RASCAL CREEK DROP STRUCTURE**

**Maintained by  
Merced Irrigation District for Merced County**

- 1. Condition of concrete drop structure.**
  - a. Good.**
- 2. Condition of concrete abutments.**
  - a. Good.**
  - b. Separation of the left bank wall is stable.**
- 3. Condition of revetment.**
  - a. Good.**
- 4. Accumulation of trash and debris around the structure or in the channel.**
  - a. None.**
- 5. Vegetation around the structure or in the channel.**
  - a. A volunteer fig tree is in the channel upstream of the structure.**
- 6. Comments:**
  - a. Remove the fig tree.**
  - b. Remove growth upstream of the structure.**
  - c. Good maintenance.**

**BLACK RASCAL CREEK DROP STRUCTURE**  
Maintained by  
Merced Irrigation District for Merced County



**The upstream side of the structure.**



**The downstream side of the structure.**

## **OWENS CREEK SIPHON STRUCTURE**

**Maintained by  
Merced Irrigation District for Merced County**

- 1. Condition of concrete siphon structure.**
  - a. Good.**
- 2. Condition of concrete abutments and wing walls.**
  - a. Good.**
  - b. Separation of the left bank wall is stable.**
- 3. Condition of revetment.**
  - a. Good.**
- 4. Accumulation of trash and debris around the structure or in the channel.**
  - a. None.**
- 5. Vegetation around the structure or in the channel.**
  - a. There is dense tule and weed growth in the channel immediately upstream and downstream of the structure.**
- 6. Comments:**
  - a. Remove weeds and tule growth.**
  - b. Fair maintenance.**



**OWENS CREEK SIPHON STRUCTURE**  
Maintained by  
Merced Irrigation District for Merced County



**The upstream side of the structure.**



**The downstream side of the structure.**

## **ASH AND BERENDA SLOUGH CONTROL STRUCTURE**

**Maintained by Madera County F.C. & W.C.A.**

- 1. Condition of concrete control structures.**
  - a. Good.**
- 2. Condition of concrete abutments and wing walls.**
  - a. Good.**
- 3. Condition of stop logs and supports.**
  - a. Good.**
- 4. Condition of revetments.**
  - a. Good.**
- 5. Accumulation of trash and debris around the structures or in the channels.**
  - a. None.**
- 6. Vegetation around the control structures or in the channels.**
  - a. Dense vegetation in the channel downstream of the structure.**
- 7. Comments:**
  - a. Remove the vegetation from the channel and around the structure.**
  - b. Good maintenance.**
  - c. Cable on top of the structure needs to be repaired.**

# **ASH AND BERENDA SLOUGH CONTROL STRUCTURE**

**Maintained by Madera County F.C. & W.C.A.**



**The upstream side of the Berenda structure.**



**The downstream side of the Berenda structure.**



# **ASH AND BERENDA SLOUGH CONTROL STRUCTURE**

**Maintained by Madera County F.C. & W.C.A.**



**The upstream side of the Ash structure.**



**The downstream side of the Ash structure.  
Note the dense vegetation.**





**FRESNO RIVER DIVERSION WEIR**  
**Maintained by Madera County F.C. & W.C.A.**

1. Condition of concrete weir structure, stilling basin, and velocity dissipaters.
  - a. Good.
2. Condition of the diversion structure.
  - a. Good.
3. Condition of the concrete abutments and wing walls.
  - a. Good.
4. Condition of control gate and mechanisms.
  - a. Good.
5. Condition of revetments.
  - a. Good.
6. Accumulation of trash and debris around the structures or in the channel.
  - a. None.
7. Vegetation around the structures or in the channel.
  - a. Moderate growth in channel and around the structure.
8. Condition of gauging house and equipment.
  - a. Good.
9. Comments:
  - a. Remove the growth from the structure and channel.
  - b. Fair maintenance.

**FRESNO RIVER DIVERSION WEIR**  
**Maintained by Madera County F.C. & W.C.A.**



**The downstream side of the diversion weir.**



**The upstream side of the diversion weir.**

**BEAR CREEK FIVERSION STRUCTURE**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of concrete weir structure and stilling basin.
  - a. Good.
2. Condition of concrete abutments and wing walls.
  - a. Good.
3. Condition of revetment.
  - a. Damage to both banks upstream of the structure.
4. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
5. Vegetation around the structure or in the channel.
  - a. Moderate.
6. Comments:
  - a. Monitor and repair revetment as needed.
  - b. Remove vegetation.
  - c. Good maintenance.

**BEAR CREEK FIVERSION STRUCTURE**  
**Maintained by Lower San Joaquin Levee District**



**The upstream side of the structure.**



**The downstream side of the structure.**

**OWENS CREEK CONTROL STRUCTURE**  
**Maintained by Lower San Joaquin Levee District**

1. **Condition of concrete control structure.**
  - a. **Good.**
2. **Condition of abutments and wing walls.**
  - a. **There are 2 inch cracks, four to five feet in length in the right and left bank abutments.**
3. **Condition of stop logs and supports.**
  - a. **Good.**
4. **Accumulation of trash and debris around the structure or in the channel.**
  - a. **None.**
5. **Vegetation around the structure or in the channel.**
  - a. **Minimal.**
6. **Comments:**
  - a. **This structure was in existence prior to the construction of the project and is a part of the Lower San Joaquin Levee District but is operated by Eastside Canal Company.**
  - b. **Monitor and repair the cracks in the abutments as needed.**
  - c. **Fair maintenance.**
  - d. **Wooden bridge crossing has new timber, replaced by L.S.J.L.D.**



**OWENS CREEK CONTROL STRUCTURE**  
Maintained by Lower San Joaquin Levee District



**The upstream side of the structure.**



**The downstream side of the structure.**

**OWENS CREEK CONTROL STRUCTURE**  
Maintained by Lower San Joaquin Levee District



**The 2 inch crack in the right bank abutment on the upstream side. The left bank abutment is also cracked.**



**North west wing also cracking.**



**OWENS CREEK OVERFLOW STRUCTURE**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of the concrete overflow structure.
  - a. Good.
2. Condition of the abutments and wing walls.
  - a. Good.
3. Condition of the control gates and mechanism.
  - a. Good.
4. Condition of the revetment.
  - a. Good.
5. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
6. Vegetation around the structure or in the channel.
  - a. Minimal. Increase of discharge side.
7. Comments:
  - a. Fair maintenance.



# **OWENS CREEK OVERFLOW STRUCTURE**

**Maintained by Lower San Joaquin Levee District**



**View of the two 72 inch slide gates at the intake side of the structure.**



**View of the discharge side of the structure into the Eastside Bypass.**



**MARIPOSA BYPASS CONTROL STRUCTURE**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of concrete control structure.
  - a. Good.
2. Condition of abutments and wing walls.
  - a. Good.
3. Condition of radial gate and mechanisms.
  - a. Good.
4. Condition of electrical equipment.
  - a. Good.
5. Condition of gate hoist equipment.
  - a. Good.
6. Condition of revetments.
  - a. Good.
7. Accumulations of trash and debris around the structure or in the channel.
  - a. None.
8. Vegetation around the structure or in the channel.
  - a. None.
9. Comments:
  - a. All the equipment is tested and serviced prior to flood season each year. This structure is well maintained and is in excellent condition.
  - b. Good maintenance.

# **MARIPOSA BYPASS CONTROL STRUCTURE**

**Maintained by Lower San Joaquin Levee District**



**The upstream side of the structure.**



**The downstream side of the structure.**

**MARIPOSA BYPASS DROP STRUCTURE**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of concrete drop structure, stilling basin, and velocity dissipaters.
  - a. Good.
2. Condition of concrete abutments and wing walls.
  - a. Left wing wall has 3 inch separation at the joint but otherwise it is in excellent condition.
3. Condition of revetment.
  - a. Good.
4. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
5. Vegetation around the structure or in the channel.
  - a. None.
6. Comments:
  - a. Good maintenance.

# **MARIPOSA BYPASS DROP STRUCTURE**

**Maintained by Lower San Joaquin Levee District**



**The upstream side of the structure.**



**The downstream side of the structure .**

**MARIPOSA BYPASS DROP STRUCTURE**  
**Maintained by Lower San Joaquin Levee District**



**View of the left bank wing wall and the 3 inch joint separation.**





**EASTSIDE BYPASS CONTROL STRUCTURE**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of concrete control structure.
  - a. Good.
2. Condition of abutments and wing walls.
  - a. Good.
3. Condition of radial gate and mechanisms.
  - a. Good.
4. Condition of electrical equipment.
  - a. Good.
5. Condition of gate hoist equipment.
  - a. Good.
6. Condition of engine generator set.
  - a. Good.
7. Condition of float wells and allied equipment.
  - a. Good.
8. Condition of revetment.
  - a. Good.
9. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
10. Vegetation around the structure or in the channel.
  - a. Minimal.
11. Comments:
  - a. All the equipment is tested and serviced prior to flood season each year. This structure is well maintained and is in excellent condition.
  - b. Good maintenance.

# **EASTSIDE BYPASS CONTROL STRUCTURE**

**Maintained by Lower San Joaquin Levee District**



**The upstream side of the structure.**



**The downstream side of the structure.**

**SAN JOAQUIN RIVER STRUCTURE  
AND SAND SLOUGH STRUCTURE**  
Maintained by Lower San Joaquin Levee District

1. Condition of San Joaquin River structure.
  - a. Good.
2. Condition of the abutments, wing walls, and bulkheads.
  - a. Good.
3. Condition of control gates and mechanisms.
  - a. Good.
4. Condition of the Sand Slough structure (Parshall flume) and wing walls.
  - a. Good.
5. Condition of the revetment.
  - a. Good.
6. Accumulation of trash or debris around structure or in the channel.
  - a. None.
7. Comments:
  - a. This structure is tested and serviced prior to each flood season.
  - b. Good maintenance.

**SAN JOAQUIN RIVER STRUCTURE  
AND SAND SLOUGH STRUCTURE**  
Maintained by Lower San Joaquin Levee District



**View of the control gates at the intake of the structure.**



**The outlet channel.**



**SAN JOAQUIN RIVER STRUCTURE  
AND SAND SLOUGH STRUCTURE  
Maintained by Lower San Joaquin Levee District**



**Upstream at the Sand Slough structure  
from the Washington street bridge.**



**FRESNO RIVER DRAINAGE STRUCTURE**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of concrete drainage structure.
  - a. Good.
2. Condition of abutments and wing walls.
  - a. Good.
3. Condition of control gate, mechanism, and flap gate.
  - a. Good.
4. Condition of revetment.
  - a. Good.
5. Accumulation of trash and debris around the structure or in the channel.
  - a. Good.
6. Vegetation around the structure or in the channel.
  - a. None.
7. Comments:
  - a. None.

# **FRESNO RIVER DRAINAGE STRUCTURE**

**Maintained by Lower San Joaquin Levee District**



**The intake side of the structure.**



**The discharge side of the structure and the control mechanism.**

**ASH SLOUGH DROP STRUCTURE NO. 1**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of concrete drop structure, stilling basin, and velocity dissipaters.
  - a. Good.
2. Condition of concrete abutments and wing walls.
  - a. Good.
3. Condition of revetment.
  - a. Good.
4. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
5. Vegetation around the structure or in the channel.
  - a. None.
6. Comments:
  - a. Good maintenance.



**ASH SLOUGH DROP STRUCTURE NO. 1**  
**Maintained by Lower San Joaquin Levee District**



**The abutments, stilling well and velocity dissipaters.**

**ASH SLOUGH DROP STRUCTURE NO. 2**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of concrete drop structure, stilling basin, and velocity dissipaters.
  - a. Good.
2. Condition of concrete abutments and wing walls.
  - a. Good.
3. Condition of revetments.
  - a. Good.
4. Accumulation of trash and debris around the structure or in the channel.
  - a. Sand has accumulated in the stilling basin.
5. Vegetation around the structure or in the channel.
  - a. None.
6. Comments:
  - a. Good maintenance.

**ASH SLOUGH DROP STRUCTURE NO. 2**  
**Maintained by Lower San Joaquin Levee District**



**The downstream side of the structure.  
Sand is accumulating in the stilling basin.**

**ASH SLOUGH DROP STRUCTURE NO. 3**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of concrete drop structure, stilling basin and velocity dissipaters.
  - a. Good, except the velocity dissipaters are covered with sand.
2. Condition of concrete abutments and wing walls.
  - a. Good.
3. Condition of revetment.
  - a. Good.
4. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
5. Vegetation around the structure or in the channel.
  - a. None.
6. Comments:
  - a. This structure is in good condition but needs to have the sand removed from the stilling basin and from around the velocity dissipaters.
  - b. Fair maintenance.

**ASH SLOUGH DROP STRUCTURE NO. 3**  
**Maintained by Lower San Joaquin Levee District**



**The partially sand filled stilling basin.  
The velocity dissipaters are covered by sand.**



**ASH SLOUGH DROP STRUCTURE NO. 4**  
**Maintained by Lower San Joaquin Levee District**

- 1. Condition of concrete drop structure, stilling basin, and velocity dissipaters.**
  - a. What can be seen is in good condition, but a seasonal sand dam is in place backing up water for irrigation purposes on the upstream side.**
- 2. Condition of concrete abutment wing walls.**
  - a. Good.**
- 3. Condition of revetment.**
  - a. Good.**
- 4. Accumulation of trash and debris around the structure or in the channel.**
  - a. None.**
- 5. Vegetation around the structure or in the channel.**
  - a. Bamboo growing along right wing wall.**
- 6. Comments:**
  - a. The seasonal sand dam on the upstream side is for irrigation purposes and can be easily breached or washed out in the event of high water.**
  - b. Remove bamboo.**

**ASH SLOUGH DROP STRUCTURE NO. 4**  
**Maintained by Lower San Joaquin Levee District**



**The downstream side of the drop structure and the seasonal sand dam.**

**EASTSIDE BYPASS DROP STRUCTURE NO. 1**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of concrete drop structure, stilling basin and velocity dissipaters.
  - a. Good.
2. Condition of concrete abutments and wing walls.
  - a. Good.
3. Condition of revetment.
  - a. Good.
4. Accumulation of trash and debris around the structure or in the channel.
  - a. None.
5. Vegetation around the structure or in the channel.
  - a. None.
6. Comments:
  - a. Good maintenance.

# **EASTSIDE BYPASS DROP STRUCTURE NO. 1**

**Maintained by Lower San Joaquin Levee District**



**Overview of the stilling basin and the velocity dissipaters.**



**Top view of the stilling basin and the velocity dissipaters.**

**EASTSIDE BYPASS DROP STRUCTURE NO. 2**  
**Maintained by Lower San Joaquin Levee District**

1. Condition of concrete structure, stilling basin, and velocity dissipaters.
  - a. Good.
2. Condition of concrete abutments and wing walls.
  - a. Good.
3. Condition of revetment.
  - a. Good.
4. Accumulation of trash and debris around the structure or in the channel.
  - a. Minimal.
5. Vegetation and debris around the structure or in the channel.
  - a. None.
6. Comments:
  - a. Good maintenance.



## **EASTSIDE BYPASS DROP STRUCTURE NO. 2**

**Maintained by Lower San Joaquin Levee District**



**Overview of the stilling basin and the velocity dissipaters.**



**Top view of the stilling basin and the velocity dissipaters.**

**SAN JOAQUIN RIVER AND  
CHOWCHILLA CANAL BYPASS CONTROL STRUCTURE**  
Maintained by Lower San Joaquin Levee District

1. Condition of the San Joaquin River Control Structure.
  - a. Good.
2. Condition of the Chowchilla Canal Bypass Structure.
  - a. Good.
3. Condition of the abutments and wing walls.
  - a. Good.
4. Condition of the radial gates and mechanisms.
  - a. Good.
5. Condition of the gate hoist equipment.
  - a. Good.
6. Condition of the engine generator set.
  - a. Good.
7. Condition of the float wells and equipment.
  - a. Good.
8. Accumulation of trash and debris around the structures or in the channel.
  - a. None.
9. Vegetation around the structures or in the channel.
  - a. Minimal.
10. Comments:
  - a. All the equipment is tested and serviced prior to flood season each year. This structure is well maintained and is in excellent condition.
  - b. Good maintenance.

**SAN JOAQUIN RIVER AND  
CHOWCHILLA CANAL BYPASS CONTROL STRUCTURE**  
Maintained by Lower San Joaquin Levee District



**The upstream side of the San Joaquin river structure.**



**The downstream at the San Joaquin river structure.**



**SAN JOAQUIN RIVER AND  
CHOWCHILLA CANAL BYPASS CONTROL STRUCTURE**  
Maintained by Lower San Joaquin Levee District



**The upstream side of the Chowchilla Canal bypass structure.**



**The downstream side of the structure  
into the Chowchilla Canal bypass.**

## GLOBAL POSITIONING (GPS)

SITE	GPS (WGS 84)
AMERICAN RIVER PUMPING PLANT NO.1 HOWE AVENUE STORM DRAIN D - 05	N 38° 35.076' W 121° 25.285'
AMERICAN RIVER PUMPING PLANT NO.1 WILLHAGGIN STORM DRAIN D - 43	N 38° 34.198' W 121° 22.500'
ASH AND BERENDA SLOUGH CONTROL STRUCTURES	N 37° 09.519' W 120° 07.470'
ASH SLOUGH DROP STRUCTURE NO. 1	N 37° 02.042' W 120° 26.518'
ASH SLOUGH DROP STRUCTURE NO. 2	N 37° 02.275' W 120° 26.422'
ASH SLOUGH DROP STRUCTURE NO. 3	N 37° 02.576' W 120° 26.191'
ASH SLOUGH DROP STRUCTURE NO. 4	N 37° 02.726' W 120° 25.796'
BEAR CREEK DIVERSION STRUCTURE	N 37° 15.292' W 120° 43.096'
BIG CHICO CREEK DIVERSION STRUCTURE	N 39° 45.710' W 121° 47.555'
BLACK RASCAL CREEK DROP STRUCTURE	N 37° 18.886' W 120° 23.781'
BUTTE SLOUGH DRAINAGE STRUCTURE	N 39° 11.826' W 121° 56.614'
BUTTE SLOUGH OUTFALL STRUCTURE	N 39° 11.724' W 121° 56.177'
CACHE CREEK SETTING BASIN WEIR AND DRAINAGE STRUCTURE	N 38° 40.953' W 121° 40.375'
CLOVER CREEK DIVERSION STRUCTURE	N 39° 10.623' W 122° 53.925'
DUCK CREEK DIVERSION WEIR AND CONTROL STRUCTURE	N 37° 56.303' W 120° 59.408'
EASTSIDE BYPASS CONTROL STRUCTURE	N 37° 12.263' W 120° 41.850'
EASTSIDE BYPASS DROP STRUCTURE NO. 1	N 36° 58.566' W 120° 22.924'
EASTSIDE BYPASS DROP STRUCTURE NO. 2	N 36° 58.583' W 120° 22.492'
ELK SLOUGH INLET STRUCTURE	N 38° 24.843' W 121° 31.379'
FREMONT WEIR	N 38° 45.540' W 121° 39.927'
FRESNO RIVER DIVERSION WEIR	N 36° 58.115' W 120° 15.330'
FRESNO RIVER DRAINAGE STRUCTURE	N 36° 58.710' W 120° 22.112'
GOMES LAKE PUMPING PLANT	N 37° 28.894' W 121° 02.797'
HIGHLAND CANAL DIVERSION WEIR AND DRAINAGE STRUCTURE	N 39° 07.579' W 122° 52.964'



## GLOBAL POSITIONING (GPS)

<b>SITE</b>	<b>GPS (WGS 84)</b>
<b>KNIGHTS LANDING OUTFALL STRUCTURE</b>	N 38° 01.580' W 121° 43.511'
<b>LINDO CHANNEL CONTROL STRUCTURE</b>	N 39° 45.678' W 121° 47.827'
<b>LINDO CHANNEL DIVERSION WEIR</b>	N 39° 45.722' W 121° 47.837'
<b>LITTLE CHICO CREEK CONTROL AND WEIR STRUCTURES</b>	N 39° 44.014' W 121° 46.309'
<b>MAGPIE CREEK PUMPING PLANT</b>	N 38° 38.448' W 121° 22.263'
<b>MARIPOSA BYPASS CONTROL STRUCTURE</b>	N 37° 12.101' W 120° 41.696'
<b>MARIPOSA BYPASS DROP STRUCTURE</b>	N 37° 12.159' W 120° 45.314'
<b>MIDDLE CREEK PUMPING PLANT</b>	N 39° 08.538' W 122° 54.141'
<b>MORMON SLOUGH PUMPING PLANT NO. 1</b>	N 37° 59.378' W 121° 16.016'
<b>MORMON SLOUGH PUMPING PLANT NO. 2</b>	N 37° 58.939' W 121° 14.966'
<b>MORMON SLOUGH PUMPING PLANT NO. 3</b>	N 37° 58.439' W 121° 13.798'
<b>MOULTON WEIR</b>	N 39° 20.299' W 122° 01.326'
<b>NELSON BEND</b>	N 38° 53.665' W 121° 37.101'
<b>NORTH FORK FEATHER RIVER DIVERSION CHANNEL DROP STRUCTURE DROP STRUCTURE NO. 3 THROUGH 7</b>	N 40° 28.202' W 121° 25.120'
<b>NORTH FORK FEATHER RIVER DIVERSION CHANNEL DROP STRUCTURE DROP STRUCTURE NO.1</b>	N 40° 29.864' W 121° 26.123'
<b>NORTH FORK FEATHER RIVER DIVERSION STRUCTURE</b>	N 40° 30.292' W 121° 26.193'
<b>OWENS CREEK CONTROL STRUCTURE</b>	N 37° 13.190' W 120° 41.891'
<b>OWENS CREEK OVERFLOW STRUCTURE</b>	N 37° 12.350' W 120° 41.808'
<b>OWENS CREEK SIPHON STRUCTURE</b>	N 37° 15.771' W 120° 17.281'
<b>PARADISE DAM</b>	N 37° 45.633' W 121° 18.565'
<b>RECLAMATION DISTRICT NO. 2063 PUMPING PLANT (Nelson Drain)</b>	N 37° 23.867' W 120° 58.346'
<b>SACRAMENTO WEIR</b>	N 38° 36.319' W 121° 33.489'
<b>SAN JOAQUIN RIVER AND CHOWCHILLA CANAL BYPASS CONTROL STRUCTURE</b>	N 36° 46.439' W 120° 17.044'
<b>SAN JOAQUIN RIVER STRUCTURE AND SAND SLOUGH STRUCTURE</b>	N 37° 06.745' W 120° 35.358'

## GLOBAL POSITIONING (GPS)

SITE	GPS (WGS 84)
SUTTER BYPASS PUMPING PLANT NO. 1	N 38° 55.914' W 121° 38.064'
SUTTER BYPASS PUMPING PLANT NO. 2	N 38° 01.580' W 121° 43.624'
SUTTER BYPASS PUMPING PLANT NO. 3	N 39° 07.202' W 121° 46.764'
SUTTER BYPASS WEIR NO. 2	N 39° 06.164' W 121° 45.522'
TISDALE WEIR	N 39° 01.619' W 121° 49.918'
WADSWORTH CANAL WEIR NO. 4	N 39° 09.206' W 121° 44.076'